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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,010	01/24/2007	Andre Harmen Sijpkes	903-190 PCT/US	6133

23869 7590 04/01/2009
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EXAMINER

VAN OUDENAREN, SARAH A

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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04/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,010	Applicant(s) SIJPKES ET AL.	
	Examiner SARAH VAN OUDENAREN	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/21/2006 and 6/15/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 requires oxidation or ammoxidation wherein instant claim 9 from which it depends, is limited to only oxidation.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the ceramic inert carrier" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 7-12 provides for the use of a catalyst, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 7-12 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper

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definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-8, and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoru et al (EP 0 895 809).

Satoru teaches a Nb containing catalyst which can be used for the production of (meth)acrylic acid or (meth)acrylonitrile in high yield. The active elements of the catalyst are Nb, Mo, V, and Te (pg 6, lines 15-20). The catalyst may further comprise a carrier which may be silica, alumina, titania, magnesia, or zirconia, but a silica sol is preferred (pg 13, lines 5-15). An aqueous compound mixture is made with Nb and solutions of the other active elements and can have the carrier as well. It is usually obtained in the form of a slurry. The aqueous mixture is then spray dried at a temperature of 150-300°C. (pg 13, lines 30-58). The dried particulate catalyst can be heat treated in an atmosphere of air at a temperature of 200-400°C and then calcined in an atmosphere of inert gas at a temperature of 500-700°C (pg 14, lines 1-15).

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Regarding claim 2, Satoru teaches the aqueous mixture being spray dried at a temperature of 150-300°C (pg 13, lines 50-55).

Regarding claim 3, Satoru teaches the calcining taking place in an inert atmosphere where the inert gas is nitrogen or argon (pg 14, lines 1-5).

Regarding claim 6, Satoru's method obtains a catalyst which has active ingredients of Nb, Mo, V, and Te (pg 12, lines 45-55).

Regarding claims 7-8, Satoru teaches (meth)acrylic acid or (meth)acrylonitrile can be produced via oxidation or ammoxidation of propane or isobutene in the presence of the catalyst discussed above (pg 14, lines 5-10).

Regarding claims 10-11, Satoru teaches the process can be conducted in a conventional reactor such as a fixed bed reactor (pg 14, lines 10-15).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4, 6, and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Han et al (EP 1 358 932).

Han teaches a supported catalyst comprising mixed metal oxide. The catalyst comprises Mo, V, Te, and Nb and can be combined with a support (pg 4, lines 45-58). The catalyst and support are prepared in a slurry and dried via spray drying (pg 6, lines 40-58). The spray drying is done at a temperature 125-200°C (pg 7, lines 1-5). The

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catalyst is calcined in two stages. The first stage calcines the catalyst in an oxidizing environment at a temperature of 275-400°C and the second stage calcines the catalyst in an inert atmosphere at a temperature of 500-700°C (pg 7, lines 15-30).

Regarding claim 2, Han teaches the spray drying being done at a temperature of 125-200°C (pg 7, lines 1-5).

Regarding claim 3, Han teaches the inert atmosphere to be either argon or nitrogen (pg 7, lines 10-15).

Regarding claim 4, Han teaches the support to be preferably ceramic (pg 5, lines 10-15) and be of the particle size 5 to 30 mesh (pg 5, lines 1-10).

Regarding claim 6, Han teaches a catalyst which comprises Mo, V, Te, and Nb which is produced by the process discussed above.

Regarding claim 9, Han teaches subjecting an alkane to a vapor phase catalytic oxidation reaction in the presence of the catalyst discussed above to produce carboxylic acid (pg 8, lines 15-20). The alkane may be ethane (pg 8, lines 50-55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoru et al (EP 0 895 809) as applied to claims 1 and 6 above, and further in view of Ushikubo (US 5,380,933).

Satoru teaches a Nb containing catalyst which can be used for the production of (meth)acrylic acid or (meth)acrylonitrile in high yield. The active elements of the catalyst are Nb, Mo, V, and Te (pg 6, lines15-20) as discussed above.

Satoru does not explicitly teach the preparation of acetic acid by oxidizing ethane.

Ushikubo teaches a method for producing carboxylic acid which subjects an alkane to a vapor phase catalytic oxidation reaction in the presence of a catalyst comprising Mo, V, Te, and Nb (col 1, lines 60-70). The starting material alkane may be ethane (col 5, lines25-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the catalyst of Satoru with the ethane and production of carboxylic acid of Ushikubo as the catalysts utilized are similar and would therefore produce similar products when put under oxidation. Further, as both Ushikubo and Satoru teach oxidizing an alkane with their respective catalysts, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize any alkane, i.e. ethane.

Regarding claim 12, Satoru teaches the process can be conducted in a conventional reactor such as a fixed bed reactor (pg 14, lines 10-15).

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Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al (EP 1 358 932).

Han teaches a supported catalyst comprising mixed metal oxide. The catalyst comprises Mo, V, Te, and Nb and can be combined with a support (pg 4, lines 45-58) as discussed above. Han further teaches that the material may be converted to a catalyst having higher activities by grinding and then processing it (pg 7, lines 45-50). Han teaches the particle size of the catalyst to be 5-30 mesh (pg 5, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to grind the catalyst of Han further as it would convert the catalyst to have higher activity. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to further grind the catalyst into an optimal size for the desired end product and/or to be functional during the desired reactive conditions.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARAH VAN OUDENAREN whose telephone number is (571)270-5838. The examiner can normally be reached on Monday-Thursday, 9:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SVO

3/27/2009

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793